NEW MODE OF CONSTRUCTING BUILDINGS.

Lieutenant Higginson has obtained patents for a mode of construction to obviate danger from fire. We insert the inventor's description of the system, but shall withhold our opinion upon it until we can examine his models and drawings:—

"To avoid (says the author) anything like exaggerated pretension or egotistical assumption, has been my primary object. And as all inventions are now necessarily but the adoption of known forms and principles to novel purposes, I have no wish these improvements should be considered more than the result of a fortunate experiment, originating in the exigencies of maritime adventure, subsequently, however, after much labour and consideration, adapted to shore architectural purposes; the object being to remedy those defects in the existing system of construction most pregnant with danger to the community; and without attempting to alter either the present principles or practice of house building, by the substitution of iron for wood generally throughout the structure, to render erections not only fire-proof, but by having no perishable material inserted, quadruple the strength, obviate their tendency to decay.

"These *desiderata* are attained in the following manner:—The patent joists of cast or rolled iron, T shaped, have at each end of any required length a dovetail projection all of one size, fitting into flanched mortices on the iron girders and bonding sockets. The iron girders, of proportionate strength, are likewise ⊥ shaped, but reversed, having flanched dovetail mortices cast on each side of them, one foot or eighteen inches apart, as necessary, to receive the dovetail ends of the joists. The iron bonding sockets are of the size and shape of a brick, cut off angularly before, cone shaped cast hollow; in the shorter side having a like dovetail mortice to receive the joists. The short iron trimmer joists compass the chimneys in the usual manner, fitting by dovetail ends into mortices cast on the principal trimmer, at one end, and into the bonding sockets, built into the house wall, beside the chimneys, at the other. The usual arch for the support of the hearth being provided for by iron bearing-pieces fitting in mortices between the short trimmer joists, with an iron plate to uphold the bed of mortar under the hearth stone; thus rendering the whole frame-work of the floor perfectly independent of support from the stack of chimneys, the entire isolation of which obviates all danger of that sinking which occasionally takes place from their greater weight in chimney stacks recently erected. The wells, or openings for staircases, are formed by iron trimmers cast with dovetail mortices on them to receive the joists, and may be obtained of any required form, size, or description. Additional means of support being provided, when requisite, by iron pillars with a screw in the centre of the lower end, fitting into a female screw socket, drilled into the trimmer beneath—a denon or projecting piece, at the upper end of the pillar, entering a recess, cast or drilled to receive it, in the trimmer of the floor above. Breast-trimmers for shop-fronts, gateways, and other purposes, may be cast with the mortices for the joists on the inside; and any description of ornamental device, name, or entablature without—imposing spans, to support great weights of superstructure, being likewise, where requisite, annexed. And when the non-transmission of sound between different apartments is required, however near as a substitute for the usual filthy and destructive method of pugging, slight sheet iron, or tin cases, fitting in breadth and depth, between the iron joists, are inserted; which cases, when made, are supported internally from collapse by strong iron upright wires; and the atmospheric air within being displaced by passing a body of steam into them—upon hermetically sealing, and allowing the steam to condense, a sufficient approximation to a perfect vacuum is obtained to prevent the transmission of either heat or sound. Unlike the mould and saw-dust now used, adding little to the superstructural weight; and effectually preventing extended combustion, should even the wooden floors and furniture of one apartment be ignited and destroyed.

"It may be necessary to recapitulate, that the walls having been built upon the usual manner to the required height, from floor to floor, the patent iron joists are laid in precisely the same way as if of wood, on an iron bond, observing that at every fourth joist, an iron, brick-shaped, bonding socket is built into the wall, to receive the dovetail end of the joist; the like bonding sockets being likewise inserted in the party-walls when no girders are used—the inside ends of the joists fitting into the flanched dovetail mortices cast on the girders and trimmers, as before described, wherever both or either are in use. By these means the whole fabric is tied together and supported as one solid mass, the bonding sockets in the front walls uniting by dovetail the joists to the girder, or party-walls, in the interior; this central holding being again connected by the iron joists with the bonding sockets built into the back walls. One great saving effected in material and workmanship it may here be admissible to particularize. Supposing the depth of joist required in wood to be fifteen inches, an iron joist nine inches deep would be more than adequate; and thus, with the same pitch of ceiling upon every story, two courses of bricks around the entire fabric, with the mortar and workmanship, would be saved. There are other advantages equally obvious, although, perhaps, of minor importance—such as entire exemption from vermin of every description. Notwithstanding this, the construction of barns may be to the farmer of very serious moment, when the ravages committed by vermin are considered.

"In cases where the floors are intended to be of wood, a groove is run along beneath the upper arms of the patent iron T joist, to receive an iron bracket. The floor planks being laid, and temporarily cramped, or shored down, upon the iron joists, a projecting, square-headed, shouldered screw is inserted by a spanner, through the upper arm of the bracket, into the lower surface of the floor plank, which is thus effectually secured to the joist. It being noticed, that should the boards shrink, they may be forced together and the interstices filled up by one piece in any convenient position, in consequence of the brackets moving along the grooves in the joists, and each plank being secured independently of the others. The unsightliness of a shrunken floor is thus not only remedied, but as no nail holes are visible, the screws beneath not perforating the entire thickness of the plank, one unbroken surface is presented, which for the purposes of cleanliness and appearance is alike desirable. Magazine or warehouse floors, for goods liable to spontaneous combustion, may, however, be laid of either metal, slate, or stone, rivets being substituted for screws in attaching such to the iron joists beneath—which joists are of many forms as well as that specified, when applied to different uses.

"As respects internal ceiling and plastering, these iron joists admit of the common lath being used; in which case, to hold the lathing nails, a small fillet of wood is driven into a recess formed to receive it in the lower edge of the joists. But as it is desirable that decay as well as fire should be provided against, perforated common tin, or thin galvanised iron plates, being punched full of holes, or rowed, like the nose of a watering-pot, with the rough side towards the plaster, are substituted for the laths; to which the mortar, being applied by the usual process, forces itself through the perforations, and keys at the back of the plate in precisely the same manner it would do between laths. One-half of the ordinary labour, time, and material are in this instance likewise saved, two coats of plastering only being required—and the same sound transmitting ceiling and wall-surfaces preserved. These plastering plates are attached by means of a small double-ended iron key passing through them edgeways, into mortices in the iron joists, and battens, adapted to walls; being by a spanner afterwards turned across the entering orifice, and thereby effectually and immoveably annexed. A house thus constructed cannot be destroyed by fire, and has but little tendency to decay; whilst the expense of erection, taking all items into consideration, does not exceed that of the present method of building with perishable and inflammable materials. It is however, perhaps, impossible to describe in words all that has been practically accomplished; and I shall therefore be happy to furnish any who may be interested, with samples, models, or patterns of these inventions."

WORKS OF ART AT BRITISH INSTITUTION.

The exhibition of works of modern artists, at the British Institution, in Pall Mall, was opened to the public on Monday last. It consists of 509 paintings, and 12 pieces of sculpture, and the catalogue states that 275 other pictures were returned from want of room. Until the present year works previously exhibited elsewhere were admitted, and the best places were usually occupied by pictures already known to frequenters of the Royal Academy exhibition, and which, moreover, had been sold, while other pictures not exhibited were returned. This was a manifest hardship on the painters of the latter, and being felt as such by the directors, a resolution was passed to prevent the admission of pictures which had been publicly exhibited before.

The present collection, then, consists of entirely fresh works, and may be considered a successful issue of the new arrangement. The Royal Academicians, it was said, would not paint pictures purposely for this exhibition, whereas we find here Edwin Landseer, Etty, Knight, Lee, Stanfield, Hart, Howard, and others, stronger in numbers than usual. The first, E. Landseer, has some wonderful productions of the class to which unfortunately, as we think, he confines himself. *Decoyman's Dog and Ducks* (No. 1), *King Charles's Spaniels* (No. 134), and *Retriever* (No. 199), are inimitable. Etty has some charming studies. *The Forsaken*, although small and slight, is a magnificent piece of colour. Stanfield has three beautiful pictures, of which *On the Hollands Diep* (No. 129), is the most important.

We will pass rapidly through the catalogue, and point out some of the most noticeable works. *Fruit* (26), by Lance, is a fine specimen of art, and *Scraps from a Burgomaster's Table* (102), by the same painter, is equal to any work of the sort ever executed.

Belgic Galliott aground on the Shallows off Bergen-op-Zoom (44), by E. W. Cooke, is admirably painted: the same may be said of his *Dort, Morning* (90). Mr. Cooke has three other pictures which deserve examination.

The Widow's Benefit Night (59), by F. Goodall, is one of the gems of the exhibition. It represents the interior of an Irish cabin, with dancers and revellers, and is full of character and humour. Every head is a study. *The Soldier's Dream* (197), by the same rising painter, is a fine picture, but less perfect than the preceding.

A Water Mill (124), by H. Bright, is full of beauty.

Mr. Muller has greatly distinguished himself in the present exhibition. *Rhodes, with the Pacha's Palace on the right hand of the picture* (140), and *Tomb in the water, Telmessus* (498), are not surpassed in excellence by any landscapes in the gallery.

Music (311), and *Poetry* (314), both designs for fresco by H. N. O'Neil, are full of sentiment and grace.

A Summer Afternoon (312), by J. D. Wingfield, is a view in the gardens of Hampton Court Palace, charmingly painted.

"Here, then great Anna! whom three realms obey,
Dost sometimes counsel take, and sometimes tea,
Hither the heroes and the nymphs resort
To taste awhile the pleasures of a court."

This picture and one by F. Danby, *The Gate of the Harem* (401), an admirable work, have been purchased by Prince Albert.

Our limits forbid any lengthened observations: we must content ourselves with commending and pointing out for examination, *A Scene from the Sentimental Journey* (442), by W. P. Frith, *Childe Harold at the Tomb of Cecilia Metella* (508), by F. Williams, *Hawking* (248), by Alexander Johnston, *Stag Hounds*, (253), by Jost, *Entrance Porch of the Church at Cannes* (150), by A. E. Goodall, *Highland Refugees on the Coast of France* (409), by Mrs. Mc Ian, and *Dutch Boats off Ostend* (287), by C. Bentley.

There are several bad pictures by men who ought to do better, but with these we will not meddle.

The Wesleyan Society are about to erect a chapel in the Belgrave-road, between Eccleston-square and Warwick-square. Mr. Seth Smith and Mr. Archbutt have subscribed 100*l.* each, and Mr. Edge 50*l.*

For more information on PDF Compression and OCR visit TheRape